O I P E
JAN 22 2008
PATENT & TRADEMARK OFFICE

Blakely, Sokoloff, Taylor & Zafman LLP
Title: TRELLIS DECODER AND METHOD OF DECODING
1st Named Inventor: Jeffrey S. Cohen
Application No.: 10/749,482
Sheet: 1/6
Docket No.: 42P17669
(303) 740-1980

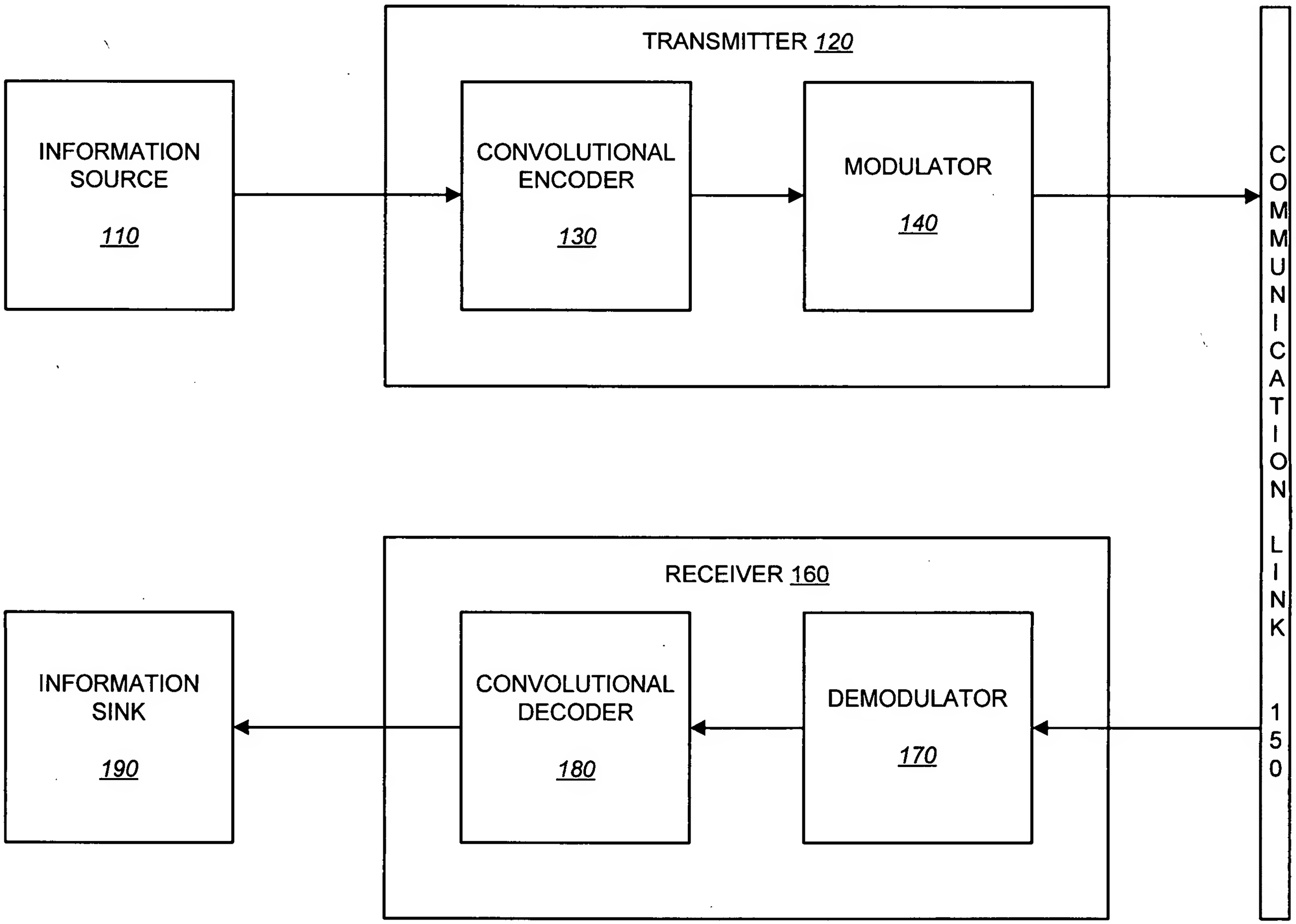

FIG. 1

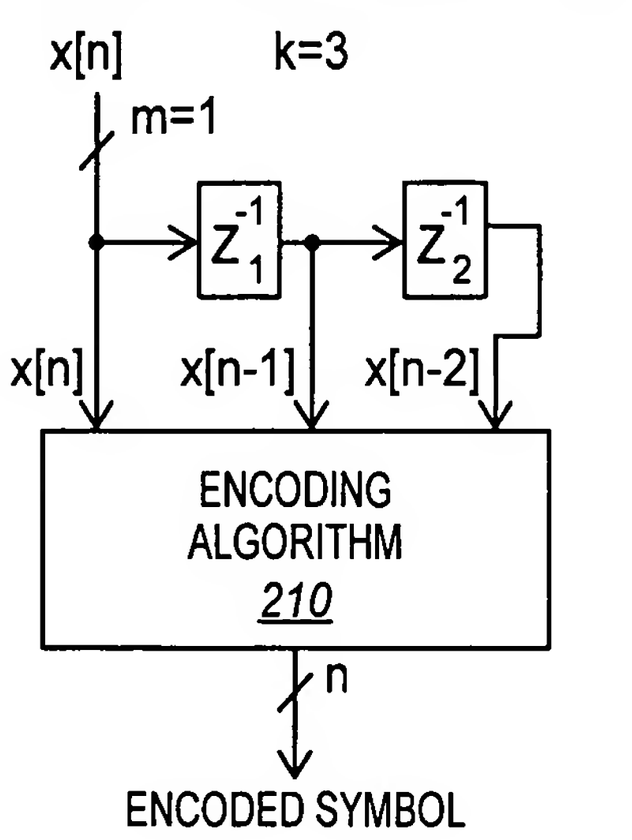

FIG. 2

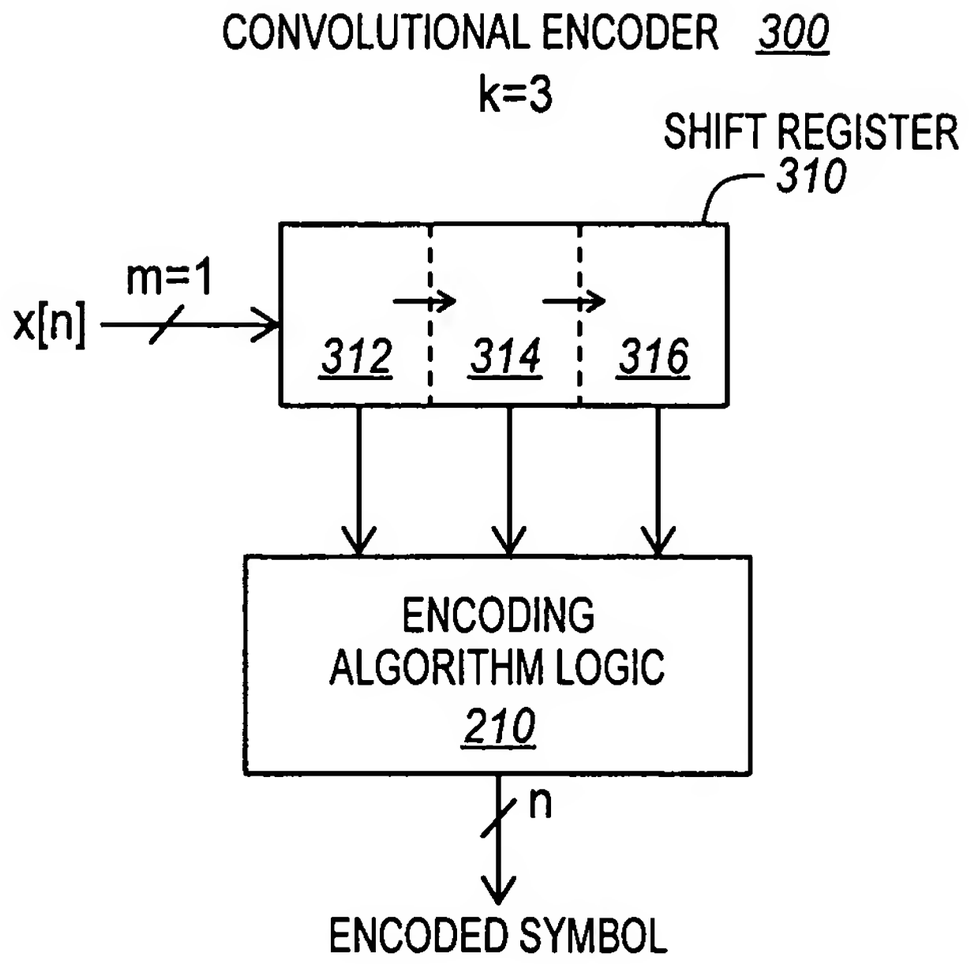

FIG. 3

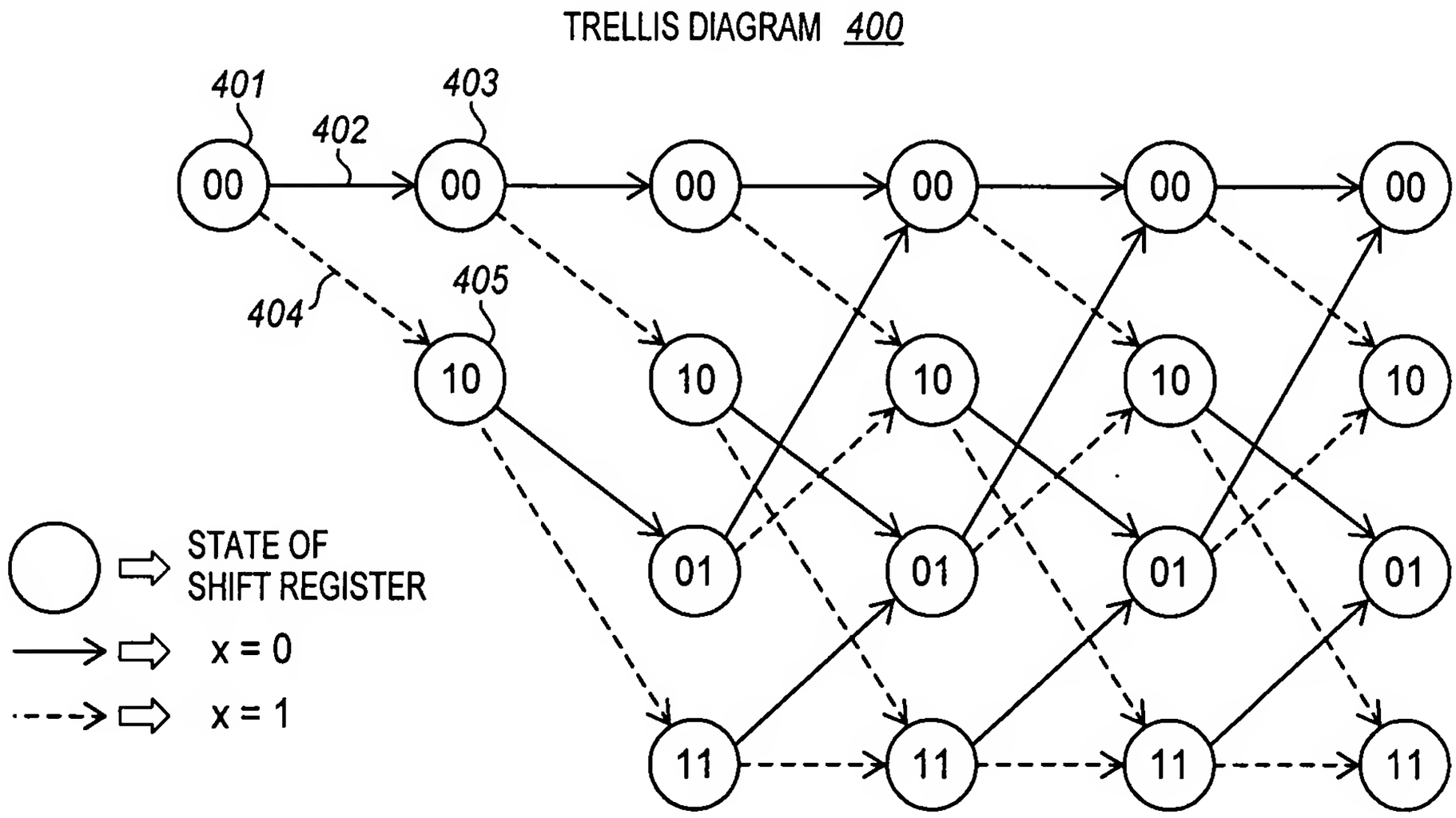

FIG. 4

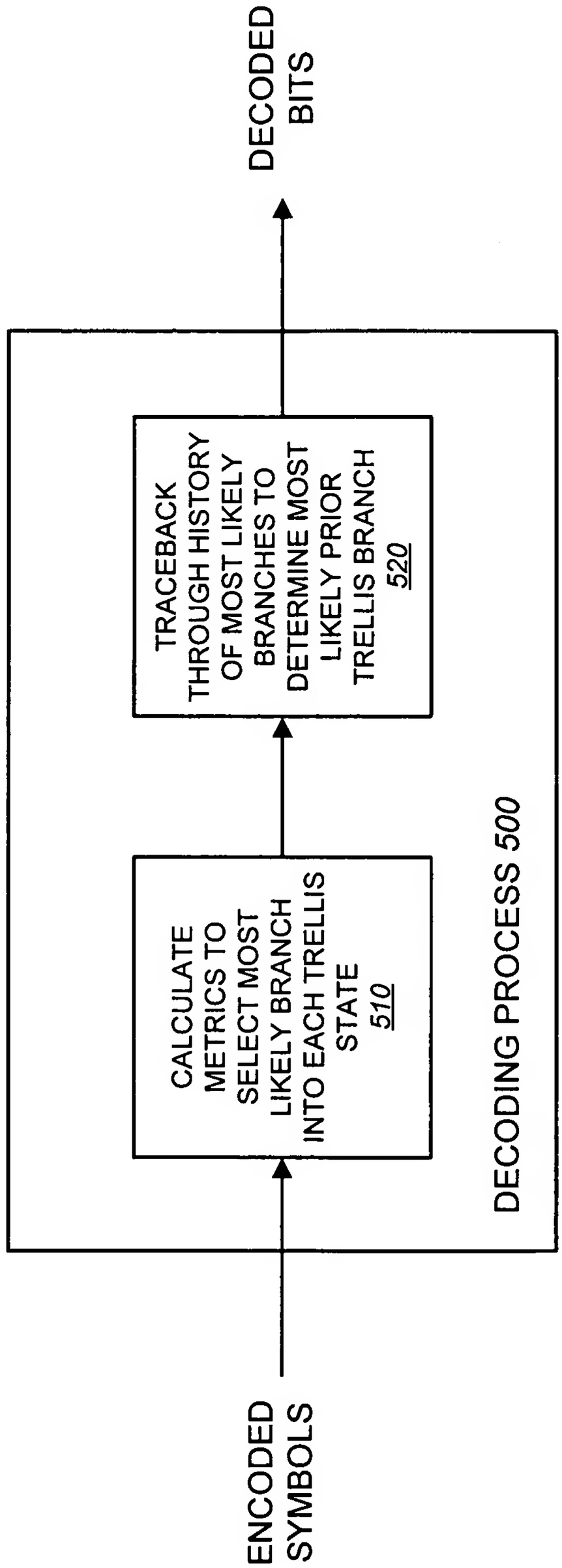
DECODED BITS
TRACEBACK THROUGH HISTORY OF MOST LIKELY BRANCHES TO DETERMINE MOST LIKELY PRIOR TRELLIS BRANCH 520
CALCULATE METRICS TO SELECT MOST LIKELY BRANCH INTO EACH TRELLIS STATE 510
DECODING PROCESS 500
ENCODED SYMBOLS

FIG. 5

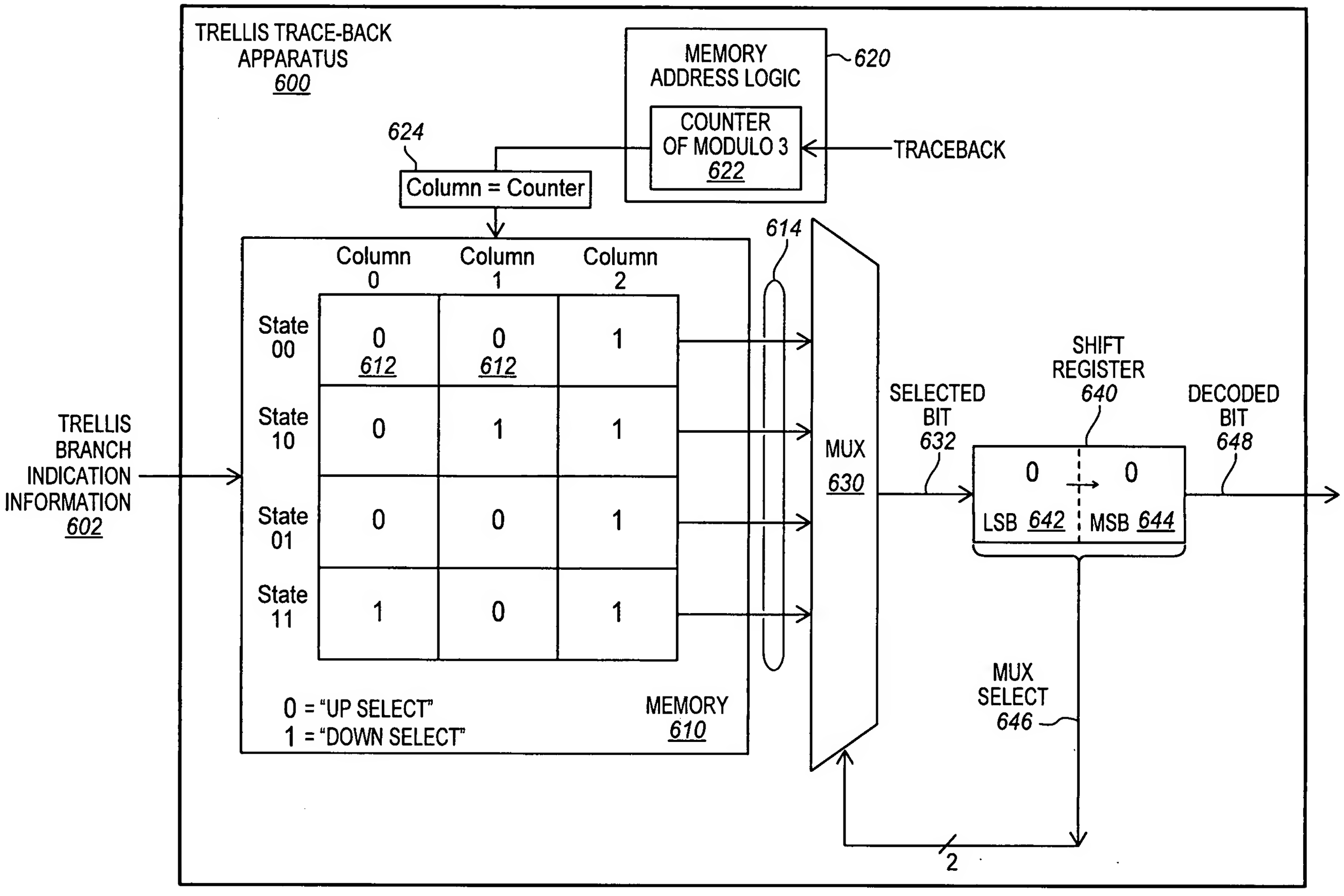

FIG. 6

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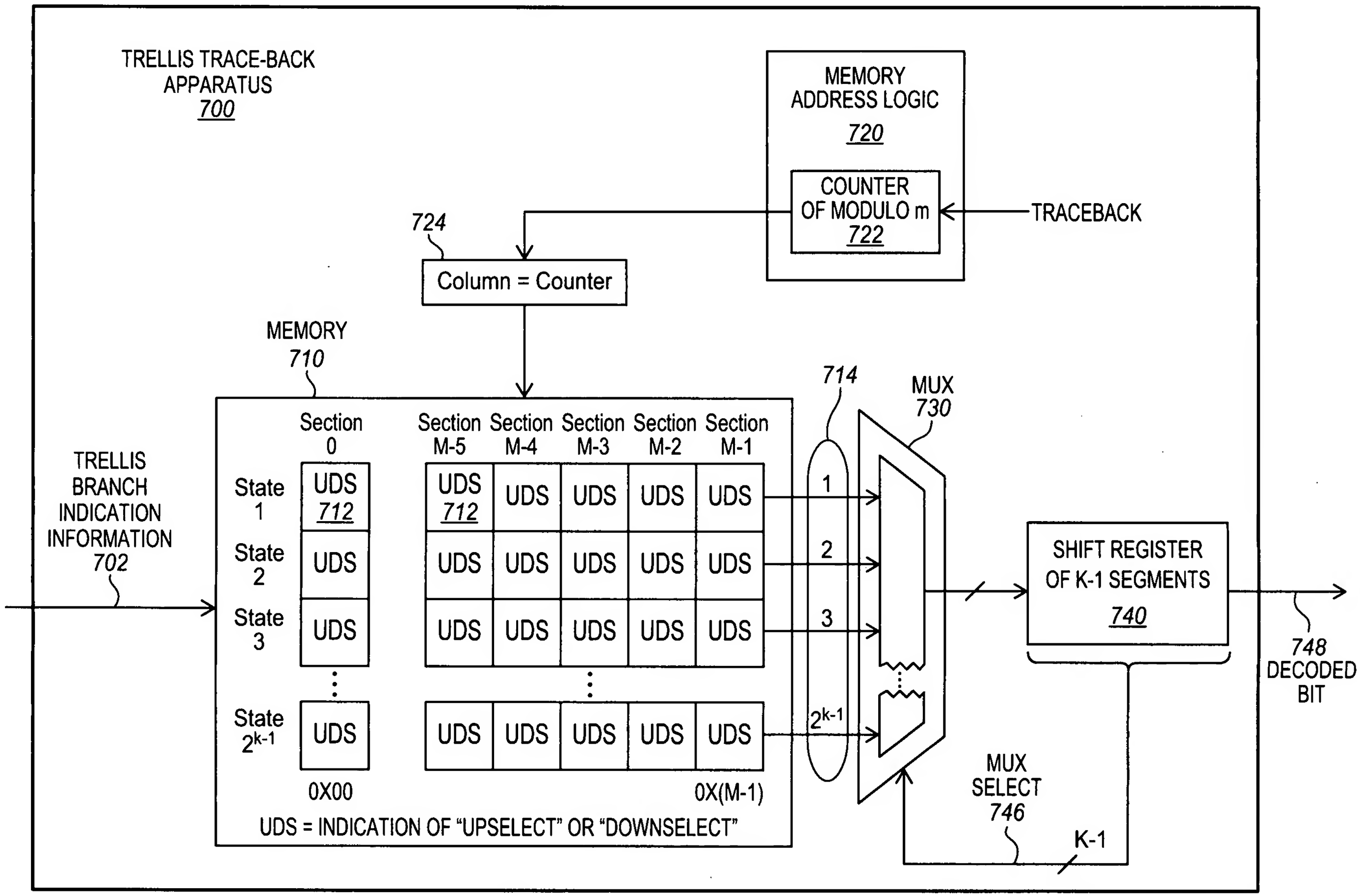
TRELLIS TRACE-BACK APPARATUS
700
MEMORY ADDRESS LOGIC
720
COUNTER OF MODULO m
722
TRACEBACK
724
Column = Counter
MEMORY
710
714
MUX
730
TRELLIS BRANCH INDICATION INFORMATION
702
Section 0
Section M-5
Section M-4
Section M-3
Section M-2
Section M-1
State 1
State 2
State 3
State 2k-1
UDS
712
UDS
0X00
0X(M-1)
UDS = INDICATION OF "UPSELECT" OR "DOWNSELECT"
1
2
3
2k-1
SHIFT REGISTER OF K-1 SEGMENTS
740
748
DECODED BIT
MUX SELECT
746
K-1

FIG. 7

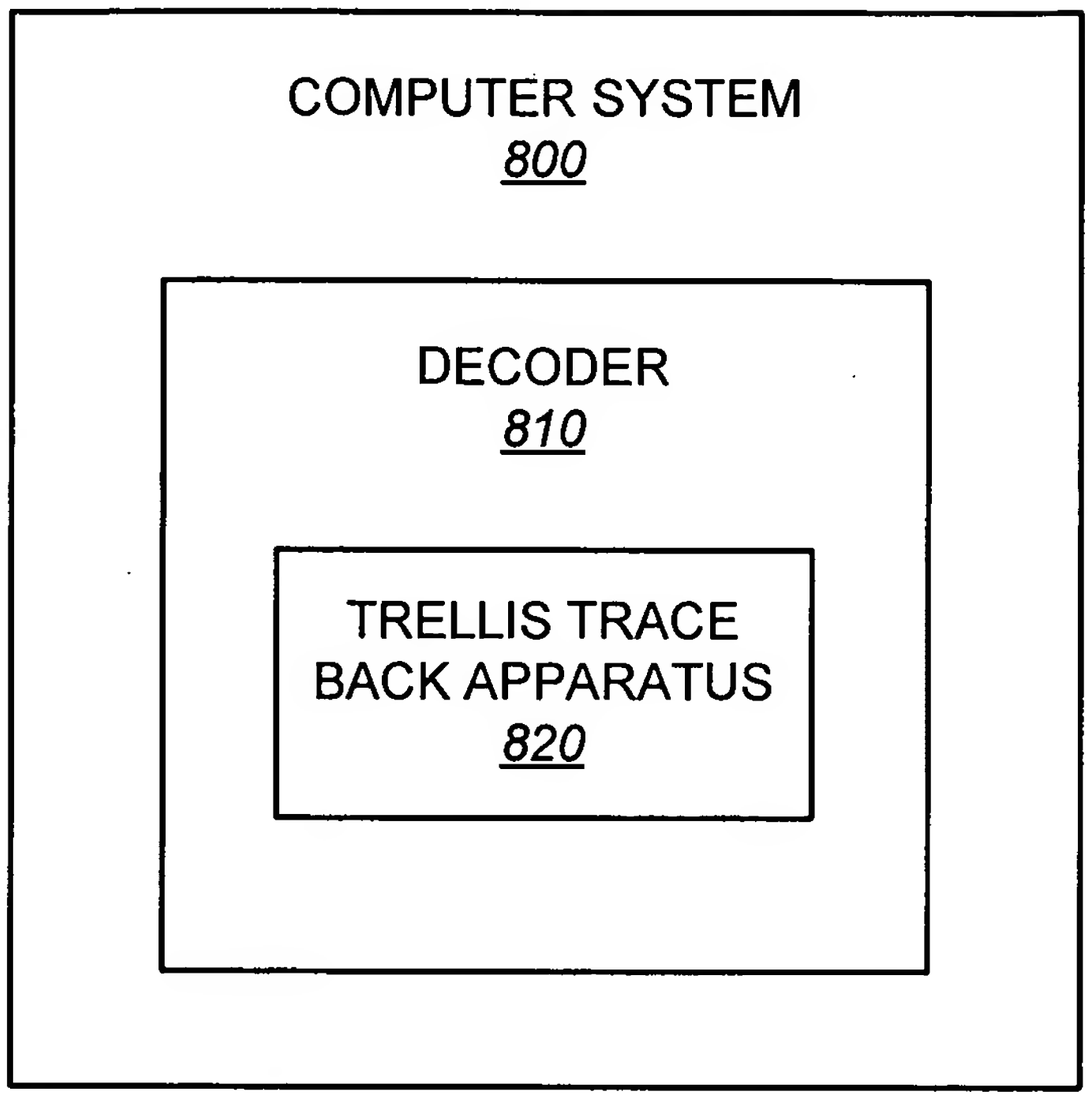
COMPUTER SYSTEM
800
DECODER
810
TRELLIS TRACE BACK APPARATUS
820

FIG. 8

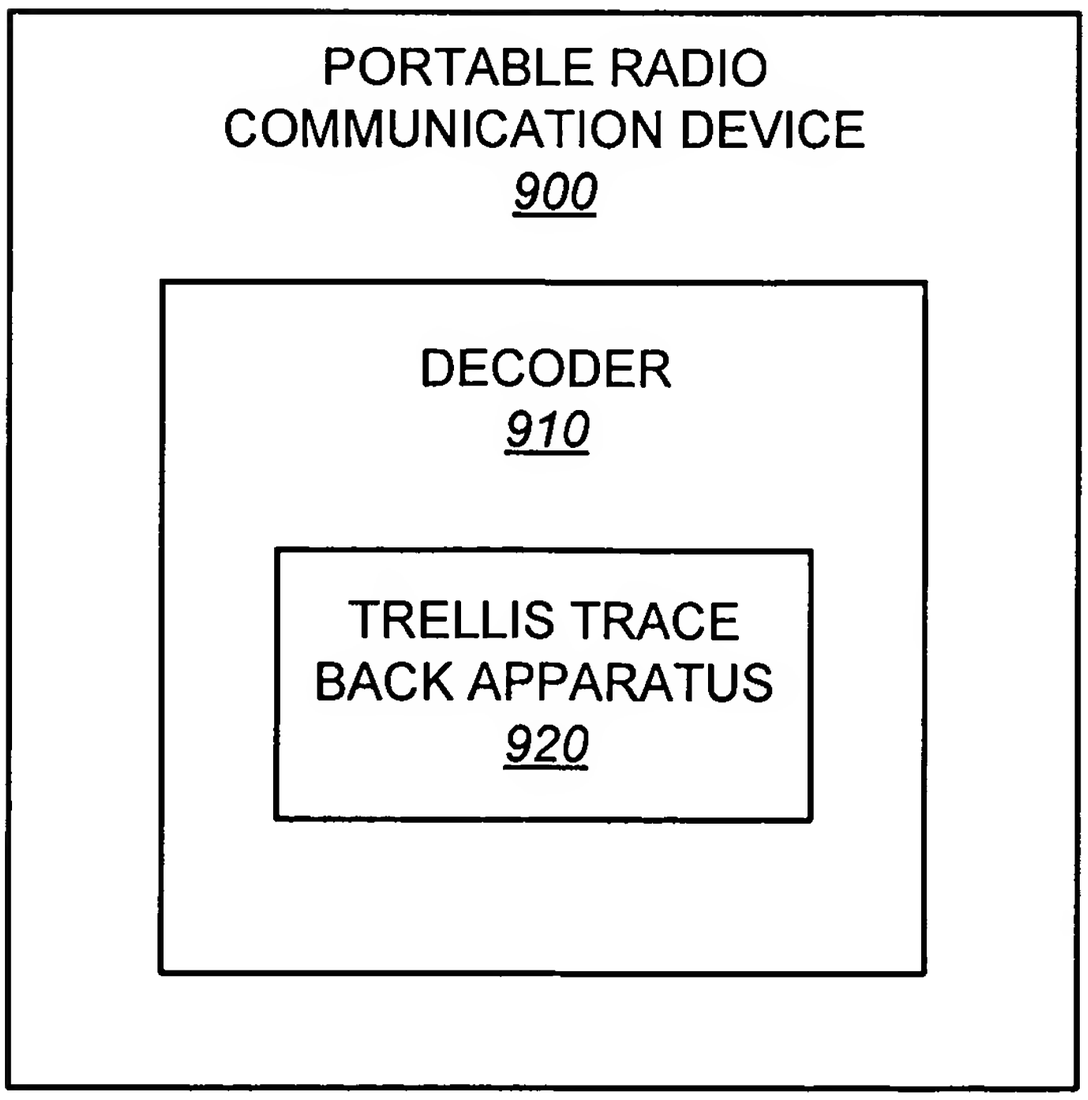
PORTABLE RADIO COMMUNICATION DEVICE
900
DECODER
910
TRELLIS TRACE BACK APPARATUS
920

FIG. 9